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J. E. Collin, F.R.E.S.

The British Species of *Chamaemyia* Mg. (*Ochthiphila* Fln.) (Diptera)

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**"THE ENTOMOLOGIST"**
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TRANSACTIONS OF THE SOCIETY FOR BRITISH ENTOMOLOGY

VOL. 17 OCTOBER 1966 PART IV

# The British Species of *Chamaemyia* Mg. (*Ochthiphila* Fln.) (Diptera)

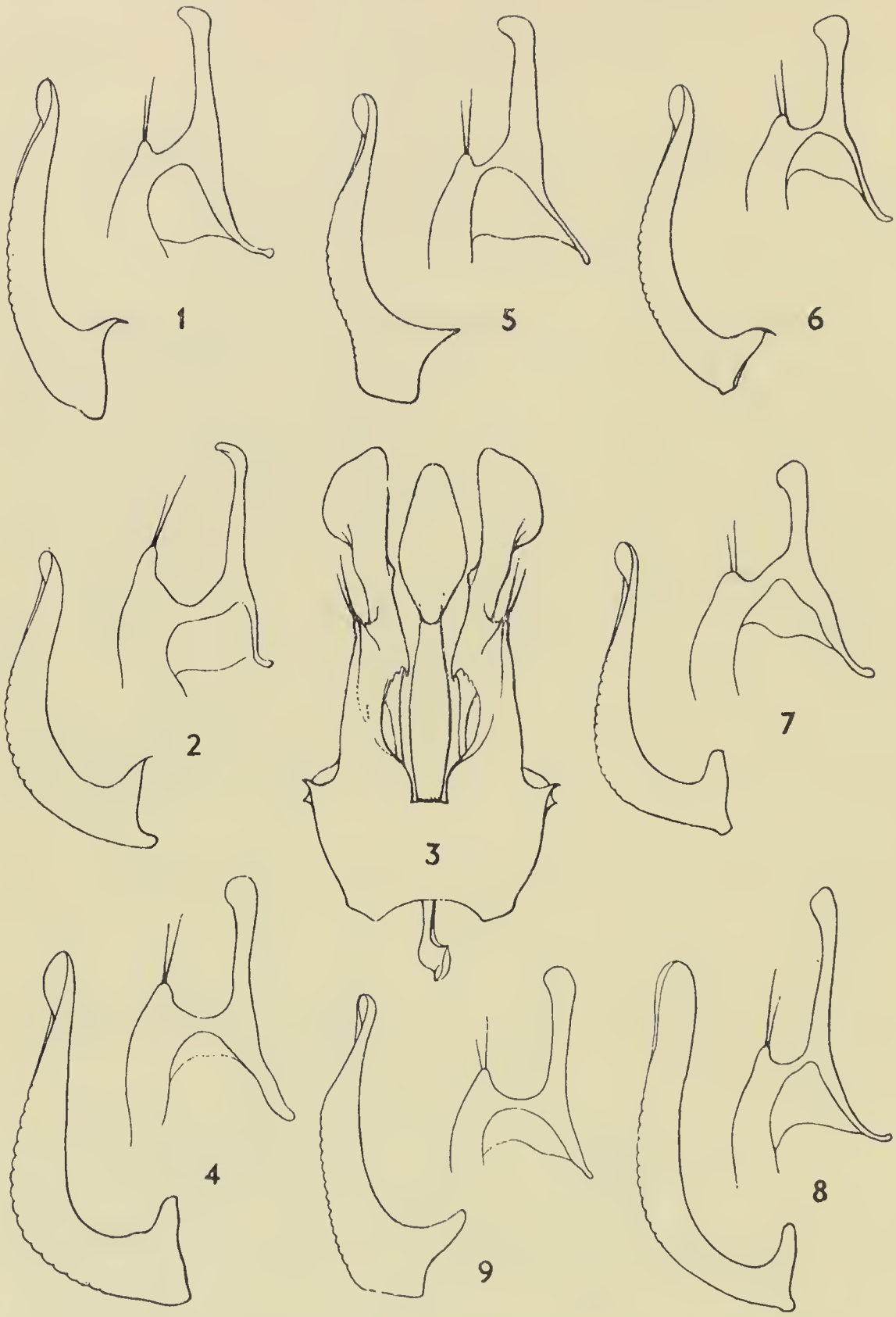
By J. E. Collin, F.R.E.S.

In 1942 a revision of the British species of this genus was published by Mr. R. L. Coe, based mainly on the work of Czerny in 1936, and for the first time giving figures of the male genitalia of the species, but his figure of the genitalia of *elegans* Pnz. is that of *fasciata* Lw. (these two species being incorrectly considered to be the same). In the following year he recognized *herbarum* Dsv. as distinct from *juncorum* Fln. Unfortunately Coe failed to realize the importance of the shape of the part he called 'aedeagus', and his 'basal appendage' is actually the apodeme of the aedeagus and attached to the lower angle of the latter, below the point 'x' in his figure 6. Also he apparently did not appear to be aware that the antennae are always darker in the female than in the male, that the female often posseses lateral abdominal spots, and even dorsal spots, when the male has none, and that the spots *may be* obvious when viewed *from behind,* but be absent (or only very faint) when viewed *from in front,* or obvious when viewed in either direction.

I cannot agree with Coe in the number of British species. He originally listed only five species, but in 1943 added a sixth (*herbarum*). There are sound reasons for accepting at least eleven British species.

In the accompanying figures of genital parts (with the exception of *paludosa* sp.n.) the only figures given are lateral views of the gonapophyses and of the penis (aedeagus of Coe), the latter apparently particularly different for each species.

The larvae of one species (*polystigma*) were found by E. E. Green in 1925 preying upon the Coccid he described as *Pseudococcus phalaridis* attacking the Ribbon-grass *Phalaris* (*Baldingera arundinacia* L.). He sent pupae to me from which I bred two females of *polystigma*. It must however be quite certain that this common species of *Chamaemyia* is not confined to attacking that particular Coccid. And yet it is equally certain that by sweeping only patches of *Carex arenaria* L. growing in the sand at Barton Mills (Suffolk) in May and June, one is certain to obtain specimens of *herbarum* only. And by sweeping a patch of *Calamagrostis epigeios* Roth. at the same time, growing in the same area, one will only obtain specimens of *C. nigripalpis*. Of course it is still possible that these two species may attack other Coccids in other areas.




Lateral view of penis and gonapophyses of species of *Chamaemyia* Mg. 1, *elegans* Mg.; 2, *fasciata* Lw.; 3, *paludosa* sp.n.; 4, *sylvatica* sp.n.; 5, *herbarum* Desv.; 6, *polystigma* Mg.; 7, *juncorum* Fln.; 8, *aridella* Fln.; 9, *nigripalpis* sp.n.

**Table of British Species of *Chamaemyia***

1 (2) Jowls below eyes quite as wide at narrowest part as third antennal joint is long. Eyes transversely-oval. Whitish-grey species with milk-white wings. Third antennal joint yellowish. Tibiae and tarsi yellow. Abdomen in male usually without spots, in female usually with varying number of small dorsal (and/or lateral) spots, which however are only visible when viewed from behind ..... *flavipalpis* Hal.

2 (1) Narrowest part of jowls below eyes not much wider than third antennal joint is wide. Other characters not all as above.

3 (6) Abdomen with transverse dark bands, interrupted on the middle line, and sometimes attenuated before reaching the sides, but very seldom (var. *flavicornis* Strbl.) interrupted at the point of attenuation.

4 (5) More yellowish-grey species with third antennal joint distinctly darkened towards tip. Second abdominal segment with (at most) two small rounded and somewhat darkened spots. Male hypopygium decidedly smaller. Occurs in damp woods in May and June ... *elegans* Pnz.

5 (4) Whitish-grey species with third antennal joint almost entirely yellow. Second abdominal segment with indications of dark bands. Male hypopygium larger. In same situations as last, but occurring later ..... *fasciata* Lw.

6 (3) Abdomen with smaller or larger *rounded* dark spots, or without spots.

7 (20) Front tibiae usually entirely yellow, often all tibiae yellow, or mainly yellow, never with only knees yellow. In doubtful cases, palpi yellow.

8 (9) Head in profile longer than usual with face more retreating. Male hypopygium *very large* and swollen. Whitish-grey species with darkened palpi; very few scattered acrostichal microchaetae, no lateral abdominal spots in male, and wings almost milk-white about base with all veins yellow. Apparently confined to inland 'Fens' ..... *paludosa* sp.n.

9 (8) Not as above.

10 (15) Third antennal joint conspicuously yellow about base *on inner side*. Abdominal spots larger (this particularly distinguishing specimens of *sylvatica* from some specimens of *herbarum*), also male hypopygium larger.

11 (12) Third antennal joint all black on outer side except sometimes about base of arista, and male abdomen without lateral spots. Eyes not very long compared with their vertical height. Tibiae (especially hind tibiae about base somewhat darkened. Wing veins dark except about base ..... *sylvatica* sp.n.

12 (11) Third antennal joint yellowish about base on outer side, as well as inner side. If all dark on outer side in male, abdomen *with* lateral spots.

13 (14) Third antennal joint rather shorter and blunter. Frons, face, thorax and abdomen more yellowish-grey (not whitish-grey). Lateral abdominal spots less conspicuous, disappearing entirely from some points of view. Female with a *large* lateral spot on sixth tergite. Male hypopygium larger. Tarsi more distinctly darkened on last 1-2 joints. A species found in Scotland only ..... *juncorum* Fln.

14 (13) A species in all respects the opposite of above. Penis in profile (Fig. 6) very distinct in angle formed by its truncate base with axis of its long part. Abdominal spots on second tergite, at least in female. A very common and widely distributed species ..... *polystigma* Mg.

15 (10) Third antennal joint entirely black, or at most faintly yellowish about base of arista only. In doubtful cases abdominal spots small or absent.

16 (17) No abdominal spots in either sex. A widely distributed species in very dry localities ..... *aridella* Fln.

17 (16) Usually at least small dorsal abdominal spots present in male, but no lateral spots, though both are present in female. If no spots apparent in male, hypopygium larger and less distinctly hairy.

18 (19) Palpi yellow. Tibiae entirely and tarsi extensively yellow. The last bristle of anterior row on middle tibiae (on front end of darkened area) distinctly longer than others. Female always with a lateral dark spot on sixth tergite as well as on other tergites ..... *herbarum* Dsv. (*juncorum* Zett. *nec.* Fln.)

19 (18) Palpi black. Normal setae in front of middle tibiae.

20 (7) All tibiae conspicuously darkened, usually only knees yellow (but note couplet 7 (20)). Abdomen of male without, or with only small spots. Third antennal joint black.

21 (22) Rather larger species with shorter antennae having a less produced upper angle. Jowls below eyes wider than 3rd antennal joint. Male hypopygium larger and more semicircular in profile, with longer bristles. A northern moorland species ..... *geniculata* Zett.

22 (21) Smaller species found in the south, and without the special characters mentioned above ..... *nigripalpis* sp.n.

## Notes and Descriptions

*C. flavipalpis* Haliday (1838) (*maritima* Zetterstedt (1846)). This synonymy has never been questioned, and the species is very distinct from all others. Coe has given a ventral view of the hypopygium, and a lateral view of the penis. In 1943 he corrected a mistake he had made in the previous year regarding the sex of

his three specimens of 'Form B'. They were all females, not males. This meant that of 44 males examined by him *only one* had spots on the abdomen. It appears highly probable that this specimen was either a hybrid, or an intersex.

*C. elegans* Panzer (1806), and *fasciata* Loew (1858)

There are certainly two different British species, as distinguished by Loew, included by Coe under the name of *elegans,* and the only question to be settled is the correct application of the two names. It is evident that the species described by Panzer was provided by Meigen, and the 'type' must be in Meigen's collection in Paris. This type was examined by Becker who reported in 1903 that it agreed with Schiner's identification of *elegans.* Evidently neither of these authors had noted that Meigen only *indicated* the colour of the antennae of his species *elegans* by stating *that in all respects* (*with the exception of the banded abdomen*) that species resembled his species *polystigma, of which he described the colour of its antennae* as 'blaszgelb, mit brauner Spitze', while Loew described the antennae of *fasciata* as 'lebhaft rothgelb'. It is therefore certain that the name of *elegans* must be used for Panzer's species described by Meigen, and not for the species described by Loew as *fasciata.*

*C. elegans* is a more yellowish-grey species than the whitish-grey *fasciata,* its third antennal joint always darker on outer side than on inner side, and never the '*vivid*' orange colour of *fasciata.* Abdominal bands less intensely black, and on second tergite at most only two dark spots (as rigured by Panzer), whereas in *fasciata* there are indications of dark bands. Hypopygium (Fig. 1) smaller than in *fasciata,* while the V-shaped sternal opening exposing the penis has the straight sides of Coe's figure of *aridella,* without the obvious 'bulge' of Coe's figure of his *elegans,* which is actually a figure of the hypopygium of fasciata Lw. (Fig. 2 of this paper).

*Ochthiphila pulchra* V. Roser (1830) has been quoted in the synonymy of *C. elegans* Pnz., but Becker, who in 1903 gave a redescription of the type (a male) in V. Roser's collection, and called it 'Eine schöne, sehr charakteristische Art', stated that its antennae were 'ganz rothgelb', which prohibits such synonymy, though it evidently could be a synonym of *fasciata* Lw. However, Becker's description of abdominal markings of the type, which he evidently considered were characteristic, made such a synonymy also impossible. Czerny in 1936, who had also examined the type, considered the abdomen as 'discoloured'. It appears certain that the true identity of *pulchra* cannot be ascertained until its genitalia have been examined.

*Chamaemyia paludosa* sp.n., ♂, ♀

Differing from allied species by shape of head in profile, shorter and less numerous acrostichal setulae on thorax, and very large hypopygium with remarkably large posterior gonapophyses.

♂. Head with frons more produced than usual with face more retreating, and eyes more horizontally elongate. Third antennal joint extensively darkened on outer side, yellow about base of arista, and broadly so about base on inner side. Palpi darkened. Abdomen normally without lateral spots, and dorsal spots on tergites 3-5 usually rather small. All spots very faint when viewed from in front. Hypopygium very large and swollen, with posterior gonapophyses of remarkable shape, and particularly large (Fig. 3). Legs yellow with (as usual) coxae, trochanters, and femora except at tip, grey like pleurae; hind tibiae often slightly darkened about middle, and all tarsi darkened towards tip. Wings whitish, especially about base, and veins yellow.

♀. Resembling male but always with lateral as well as more conspicuous dorsal spots on abdomen. Ovipositor usually retracted within the truncate end of 6th tergite.

Length about 3 mm.

Described from a pair in the author's collection taken at Chippenham Fen (Cambs.) on 14.v.43. It was also found in 1932 in Wicken Fen (Cambs.), while there are two specimens in the British Museum taken by F. W. Edwards in Wood Walton Fen (Hunts.) in June 1940. It is one of the more easily recognized species.

*Chamaemyia sylvatica* sp.n., ♂, ♀

A rather dark species with *large* dark spots on abdomen, present even on 2nd tergite when viewed from behind, but no lateral spots in male.

♂. Head of more normal outline in profile than in *paludosa*. Third joint of antennae dark on outer side except at base of arista, but paler about base on inner side. Thorax rather dark grey with a slight brownish tint at sides and behind when viewed from above, and often with indications of two narrow darker stripes between dorsocentrals in front. Abdomen more distinctly dull grey when viewed from behind, with particularly large dark spots, a pair even being visible on 2nd tergite, but no lateral spots. Hypopygium rather large, the profile of penis, and deep excavation between each pair of gonapophyses distinctive for the species (Fig. 4). Legs with pale tibiae, but hind pair, and sometimes middle pair somewhat darkened. Even then distinguishable from pale legged specimens of *nigripalpis* by larger size of abdominal spots, and yellow palpi. Tarsi darkened on last 2-3 joints. Wings with veins darker than usual. Squamae and halteres yellow.

♀. Resembling male but rather greyer in colour. Abdomen with distinct lateral spots, and large dorsal spots particularly black.

Length about $2\frac{1}{2}$-3 mm.

Types, a pair in the Author's Collection, taken at Woodditton Wood (Cambs.) on 10.v.30. Also taken in the Forty-acre Wood at Chippenham Fen (Cambs.), and at Barton Mills (Suffolk) in May and June, while there are specimens in the British Museum

Collection taken in Hunts. and Hereford. There should be no difficulty in distinguishing this species.

*C. juncorum* Fallén (1823) *nec* Zetterstedt

The name *juncorum* has been applied in the past to a number of different species, but the true *juncorum* appears to be a species confined in Britain to Scotland. It is even a more northern species than *geniculata* Zett. The use of the name by Zetterstedt for a species with almost entirely black antennae was in direct opposition to Fallén's description, and cannot be accepted as correct. Zetterstedt appears to have included true *juncorum* as a variety of *maritima* (*flavipalpis* Hal.). All records of English specimens of *juncorum* are almost certainly incorrect. Coe figured the hypopygium (compare Fig. 7 of this paper).

*C. polystigma* Meigen (1830). There should be no difficulty in identifying this common and widely distributed species from characters given in the Table of species, especially when the colour of the antennae combined with *the sexual difference in the abdominal markings* has been recognized. Palpi always yellow. Genital details given in Fig. 6.

*C. aridella* Fallén (1823). A small grey species with no abdominal spots in either sex and palpi darkened. Genital details given in Fig. 8. There may be some confusion with male specimens of *herbarum* without abdominal spots, but such specimens have yellow palpi, a stronger end bristle to the anterior row on dark part of middle femora, and shorter setulae on abdomen, and end part of hypopygium.

*C. herbarum* Desvoidy (1830) (*juncorum* Zetterstedt *nec* Fallén). A species separated by Coe in 1943 from his very composite species of *juncorum* of 1942. It appears to have some association with species of *Carex,* and especially *Carex arenaria* L. The distinctions from males of *aridella* are indicated above. It is compared with the next species (*nigripalpis*) in the following description. Genital details given in Fig. 5.

*Chamaemyia nigripalpis* sp.n., ♂, ♀

Species with almost entirely black antennae, and black palpi. Male abdominal spots quite small, and visible only when viewed from behind. Female with more obvious dorsal and lateral spots, but no lateral on sixth tergite. Tibiae usually somewhat darkened but variable.

♂. Head whitish-grey. Face rather more retreating than in *herbarum.* The angle at front of frons rather less than 45°. Palpi black and rather broader than usual. Thorax almost as whitish-grey as head. No lateral abdominal spots. Hypopygium rather larger than in *herbarum*, and rather more broadly rounded at end in profile. (Genital details, Fig. 9.) Legs usually considerably darkened, only base of all tibiae, extreme tip of all femora, and base of middle and hind tarsi, yellowish. But specimens (apparently of a later, second, brood) may have paler tibiae, and

basal joint of all tarsi. Wings with costal space between first and second veins longer than in *herbarum*. Halteres pale yellow.

♀. Resembling male but for abdominal spots as stated in diagnosis, the lateral spot (or patch) on each side of sixth tergite in *herbarum* is *not present*.

Types, a pair in the Author's Collection taken at Barton Mills (Suffolk) on 13th May 1947, when it was common, on a patch of *Calamagrostis epigeios* Roth. It has also been taken on the same patch in June and again in August. Also commonly at Worlington (Suffolk) in 1946 and at Chippenham Fen (Cambs.) in 1948.

Length about 2·5 mm.

*C. geniculata* Zetterstedt (1838). A little known species recorded in this country from only the northern part of Britain and Ireland, because the species described by Haliday as *geniculata* was almost certainly the same as Zetterstedt's. It has black antennae and palpi, while the abdominal markings in the male, when present, are dorsal only, very minute, and visible only when viewed from behind. Schiner correctly recorded them as 'Puncte' compared with 'Flecke' in *polystigma*. Tibiae extensively darkened. Its rather large hypopygium was figured by Coe, while the penis in profile is similar in its *sloping* truncate base to that given in Fig. 6, but is a shorter organ, and is rather suddenly stouter near its evenly curved basal part, not figured in this paper. The female has lateral as well as dorsal spots.

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